invention from the teaching in the Mennie, Sklarew and other cited patents. The applicants do not believe that these cited patents fairly suggest the applicant's now claimed invention, either singly or in combination.

With regards to the Examiners new grounds of rejection he states that: "Claims 1-11, 15, and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by U. S. Patent 5,992,601 to Mennie et al." Continuing, he states that:

"As to claims 1,6 and 31, Mennie discloses a method for identifying and verifying documents to determine if they are genuine, counterfeit or altered (column 2, lines 47-50, wherein currency bills corresponds to documents and authenticating corresponds to genuine, counterfeit or altered), the method comprising the steps of: "

"Determining a first characteristic of a first document to be verified, the first characteristic being common to a first group of documents that is less than all documents (column 2, lines 52 60 wherein the first characteristic is used to determine a first group consisting of a plurality of denomination less than all denomination, associated with that characteristic);"

"Retrieving a set of second characteristics for the first group of documents, where individual documents in the first group of documents have ones of the second characteristics (column 2, lines 60-63);"

"Comparing characteristics found in the first document with each of the second characteristics to identify the first document (column 2, lines 60-63);"

"Retrieving a set of reference information unique to the first document (column 2, lines 52-54); and"

"Comparing characteristics found in the first document with each of the set of reference information to determine if the first document is genuine, counterfeit or altered (column 2, lines 64-67)."

The Examiner's comments concerning the claims are correct, but in view of the amendments to the claims, cancellation of claims, and the new claims, as described hereinafter, it is believed that the Examiner's new rejection is now overcome.

First, it must be understood what the Mennie patent teaches. The Mennie patent teaches denominating and authenticating currency bills and "a variety of documents" (col. 22, l. 57 -59). While this is done, it is done in an entirely different manner than done by the applicants. The Mennie patent only teaches a mechanical operation wherein currency bills are moved along a path underneath scanheads. For example, see col. 6, l. 50 – 56 which reads: "the bill transport path is defined in such a way that the transport mechanism 16 moves currency bills with the narrow dimension of the bills being parallel to the transport path and the scan direction." See also col. 6, l. 16 – 19 and 31; col. 21, l. 62 – 64; col. 14, l. 3 – 8; and many other places in the Mennie specification.

Located above and below the transport path along which a currency bill or other document moves are multiple scanheads (col. 5, l. 60)(col. 6, l. 27)(col. 16, l. 24 – 27) and "at least one light source 22 directing a beam of coherent light downward onto the bill transport path so as to illuminate a substantially rectangular strip 24 upon a currency bill 17" (col. 6, l. 28 – 32). The scanheads may be of many types such as optical, magnetic, capacitive, conductive, etc. See col. 6, l. 39 – 44 and col. 23, l. 19 – 29 and other places in the specification. The scanheads may be arranged in an overlapping or non-overlapping manner (col. 21, l. 16 – 20).

The optical detectors are photodetectors that detect light reflected from an illuminated strip on a currency bill (col. 6, l. 62 – col. 7, l. 10). An optical encoder 32 connected to a CPU is linked to the bill transport mechanism 16 to precisely track the movement of a bill across the scanheads (col. 7, l. 23 – 40). In addition, the photodetector is used to detect the presence of a bill and the starting point of the printed pattern on a bill. See col. 7, l. 41 through col. 8, l. 8, a portion of which is reproduced immediately below.

"The output of photodetector 26 is monitored by the CPU 30 to initially detect the presence of the bill underneath the scanhead 18 and between the scanheads

18a and 18b and, subsequently, to detect the starting point of the printed pattern on the bill, as represented by the thin borderline 17A which typically encloses the printed indicia on currency bills. Once the borderline 17A has been detected, the optical encoder 32 is used to control the timing and number of reflectance samples that are obtained from the output of the photodetector 26 as the bill 17 moves across the scanhead(s) and is scanned along its narrow dimension."

There is no direct reading or recognition of anything on a currency bill. Rather, the intensity of light reflected from a bill varies depending on what is printed on the face of the bill and the intensity variations result in corresponding variations in the output signal from the photodetector(s). See col. 8, l. 9 – 22 reproduced immediately below.

"FIGS. 2a-2c illustrate the scanning process of scanheads in more detail. Referring to FIG. 2b, as a bill 17 is advanced in a direction parallel to the narrow edges of the bill, scanning via a wide slit in the scanhead(s) is effected along a segment S of the central portion of the bill 17. This segment S begins a fixed distance D inboard of the borderline 17A. As the bill 17 traverses the scanhead(s), a strip s of the segment S is always illuminated, and the photodetector 26 produces a continuous output signal which is proportional to the intensity of the light reflected from the illuminated strip s at any given instant. This output is sampled at intervals controlled by the encoder, so that the sampling intervals are precisely synchronized with the movement of the bill across the scanhead(s)."

The light intensity output from the photodtector(s) at specific areas on a bill are used to identify a currency bill by comparing them to an averaged set of photodetector signals caused by light reflected from a number of valid bills of the same denomination. See col. 8, l. 35 through col. 9, l. 20. If no match, or not a close enough match, is found between the reflectance signals of a bill being denominated and the stored reflectance signals a flag is set. See col. 9, l. 55 – 64.

A two step bill denomination process may also be accomplished. Outputs from the photodetectors are used to determine the physical size of a bill and there is a preliminary

identification of the type of bill by its size (col. 19, l. 49 – 52). If, based on the size of a scanned bill, it is preliminarily determined that the bill is of a certain type the scanheads may be appropriately positioned for scanning the appropriate segment(s) of the preliminarily identified bill type (col. 19, l. 52 – 66).

The amount of processing to perform denomination can be reduced IF there is some preliminary information about the document being scanned, such as the size or color which is determined during the one pass of the bill under the scanheads. See (col. 20, l. 50 to col. 21, l. 15) a portion of which is reproduced immediately below.

"In general, if prior to scanning a document, preliminary information about a document can be obtained, such as its size or color, appropriately positioned stationary scanheads may be activated or laterally moveable scanheads may be appropriately positioned provided the preliminary information provides some indication as to the potential identity of the document. Alternatively, especially in systems having scanheads positioned over a significant portion of the transport path, many or all of the scanheads of a system may be activated to scan a document. Then subsequently, after some preliminary determination as to a document's identity has been made, only the output or derivations thereof of appropriately located scanheads may be used to generate scanned patterns. Derivations of output signals include, for example, data samples stored in memory generated by sampling output signals. Under such an alternative embodiment, information enabling a preliminary determination as to a document's identity may be obtained by analyzing information either from sensors separate from the scanheads or from one or more of the scanheads themselves. An advantage of such preliminary determinations is that the number of scanned patterns which have to be generated or compared to a set of master patterns is reduced. Likewise the number of master patterns to which scanned patterns must be compared may also be reduced."

To preliminarily determine color, and therefore a type of bill, before light reflectance scanning of a bill, a color sensor is added upstream from the scanhead (col. 21, l. 40). Alternatively, a color filter may be inserted in front of a scanhead (col. 21, l. 53). Different scanheads are utilized for this purpose.

In contrast, in the preferred embodiment of the invention, the use of the invention with a passport is described, and a single high resolution, color picture of an entire document or object is captured using a solid state camera. (page 10, l. 1, 2) The camera and an infrared light are continuously on awaiting detection of a document. (page 10, l. 3, 4) When the digital output from the camera changes it indicates that there is a document present. The document is imaged by the camera and a first picture is sent to a processor and stored. (page 10, l. 4 - 8)(page 11, l. 27) "The first picture is analyzed to locate its edges and from this the document size is determined" (page 11, l. 30, 31). By determining the document size the apparatus "has thereby narrowed down the document to be one of a smaller set of documents." (page 13, l. 6, 7)(page 4, l. 16 – 18) The document imaged may be of many different classes or kinds (p. 3, l. 11) such as "passports, visas, driver licenses, alien residence cards, and INSPASS cards" and further including bonds and other documents (p. 4, l. 13, 14)(p. 8, l. 26 – 30). In addition, the documents (whatever they may consist of) may have smart chips and memory chips that are used to identify documents (p. 2, l. 1 – 4) They may be laminated in a card or may be packaged in many other ways. Thus, a document may or may not be a piece of paper or laminated item. Accordingly, to avoid misunderstanding, the applicants now use the term "objects" rather than term "documents". In contrast, Mennie can only identify one class of documents at a time – such as currency bills and they are all paper.

Other than the size of a document other things may be utilized to determine the class of document to narrow the search for the type of document. For example, see p. 15, l. 25 et seq. where it describes that "Information in a standardized format is often located in fixed machine-readable zones ("MRZ") on a document ... " and "By analyzing information in the MRZ field, CPU 14 is able to determine if the document is a passport, or another type of document that includes an MRZ field." Also, as mentioned in the previous paragraph, documents or objects may contain such things as "smart chips" or "memory chips" that are used to identify a document

or object (p. 2, l. 1 – 4), rather than other attributes such as size. One key difference with the prior art is that the applicants capture everything on the document / object in a one time operation and use it as required in the process of identifying both the class and type of document / object.

To further narrow the search to a specific type of document or object from an identified class of documents, the presence of information at specific test regions on the first document picture / representation are looked for. (page 4, l. 18, 19) For example, the presence of certain color patterns in specific test regions. (page 4, l. 20) Information found at specified test regions in the entire document picture / representation is used to identify the type of document." (page 13, l. 7 – 11) This is also done using only the "first picture" or "representation" of the document. (page 13, l. 13) If the document is identified, testing is terminated. Otherwise, the process is repeated on the first picture / representation at another test region. (page 13, l. 13 – 26) Thus, a document may be identified (or denominated for currency) using a single color picture to determining a class of a document (eg a passport) and then to identify the type of the document (eg an Australian passport). It is important to note that as part of determining the class of a document (eg a passport), rather than relying on size, information on a document / object may be read (p. 15, l. 29 et seq.) or smart chips or memory in a document / object may be read (p. 2, l. 1 – 4). Keep in mind that a document class must be identified before a specific document type may be identified. At the cited location on page 15 the example is given of an MRZ field being read to determine if a document / object is a passport or another type of document / object that has an MRZ field. Mennie and the other cited art do not suggest or teach, singly or collectively, reading a document as part of identifying a document. At page 16, l. 32 it indicates that the information read to identify a document may be in "bar codes or on microchips on documents". Thus, it is clear that something being verified need not always be something that is visually read. Other things or objects, such as those containing microchips (p. 2, l. 1 – 4), may be processed (capture a representation) to identify the thing or object.

Once the type of document has been determined / identified reference information about the type of document, including security feature information, is retrieved and used to validate the document. (p. 15, l. 4 – 7)(p. 17, l. 6 – 12)

There are no multiple scanheads, color sensors, color filters, and, above all the document is not moving through a complex, mechanical document transport system. In addition, unlike the Mennie patent in which multiple reflectance samples are taken at different parts of a bill, the present invention only captures a single representation of a document / object (picture / image for a passport). Remember that a passport has been chosen as the vehicle for the explanation of the applicant's invention but the invention is not restricted to using a picture / image. Even with passports the presence of an MRZ thereon may be used to identify the class of the object. Also, Mennie captures no picture / image or representation of a currency bill, but instead takes multiple light reflectance samples at different locations on a bill using multiple scanheads and color sensors. An entire bill is not scanned using the scanheads, only selected parts. The applicant's claims have been amended to distinguish them from Mennie. For example, amended claim 1 now reads (without showing additions and deletions):

1.   A method for automatically processing objects of many different classes and types that are randomly presented to first identify the class of each object, then identify the type of object within an identified class of object, the method comprising the steps of:

(a)   capturing a complete representation of an entire object that is presented to be identified;

(b)   determining a first characteristic for each object presented to be identified using its complete representation captured in step (a), the first characteristic being used to identify one class of object from another class of object;

(c)   retrieving a set of second characteristics for each object presented to be identified whose complete representation is captured in step (a) and whose class of object is identified in step (b), the second set of characteristics being used to identify the type of object from amongst the class of objects identified is step (b); and

(d)   analyzing individual characteristics from the second set of characteristics retrieved in step (c) with characteristics actually in the complete object

representation captured in step (a) to identify the type of object from amongst the class of objects identified is step (b).

Amended claim 1, and the other amended independent claims, state that "many different classes and types that are randomly presented to first identify the class of each object, then identify the type of object within an identified class of object" which is not done by Mennie and the other cited art. It is also clear that a complete representation is captured of an entire object, and this same complete representation is used in all steps of identifying the object. It is also clear in the amended claim language that the first step in the identification process is determining the object class, and only after that is done is the object type determined. Mennie and the other sited patents do not suggest or teach this two step operation.

Turning again to the Examiner's rejections. Regarding claims 2 and 7 the Examiner states that Mennie discloses providing an indication that a document is genuine, counterfeit or altered. While this is true claim 2 is believed to be allowable by its dependence on an allowable independent claim 1. Claim 7 has been cancelled.

Regarding claims 3 and 8 the Examiner states that Mennie discloses the first characteristic of size with documents being in size ranges, and second characteristics being in specific locations on documents. While this is true claim 3 believed to be allowable by its dependence on an allowable independent claim 1. Claim 8 has been cancelled.

Regarding claims 4 and 9 the Examiner states that Mennie discloses that the second characteristic is color at specific location on documents. While this is true claim 4 is believed to be allowable by its dependence on an allowable independent claim 1. Claim 9 has been cancelled.

Regarding claims 5 and 10 the Examiner states that Mennie discloses keeping track of each type of document identified in the first group of documents. The applicants disagree with the Examiner. Element 116 in Fig. 11a "a preliminary set of potentially matching bills is generated at step 116". (col. 22, l. 8, 9) In contrast, the applicant's invention keeps tracks of

documents that have already been identified. Amended claim 5 is thereby believed to be allowable on its own, and based on its dependency from claim 1; and amended claim 10 has been cancelled. Claim 5 reads in part:

"(h) ordering all object types that are identified in step (d) from the most commonly identified type of objects to the least commonly identified type of objects; and"

"(i) selecting the retrieved characteristics from step (c) for use in step (d) starting with characteristics for the most commonly identified object type and progressing to the least commonly identified object type."

No where does Mennie or any of the other cited prior art order identified documents to determine the order in which future documents are processed to be identified as now clearly claimed in the amended claims. This is done to minimize the amount of time used to identify the types of documents.

Regarding claims 11 and 15 the Examiner states that Mennie discloses a method for identifying and verifying documents and quotes parts of the unamended claims. Claim 15 has been cancelled and, as pointed out above, the independent claims have all been amended to distinguish them from Mennie and other cited prior art. Thus, claim 11 is believed to be allowable based on its dependency from an allowable claim.

The Examiner then rejects claims 12 – 14, 16 – 30, and 32 "as being unpatentable over Mennie as applied to claims 11 and 15 above, and further in view of USPN 5,933,526 to Sklarew." The Examiner then refers to claim 12 and 16 and refers to keeping track of each type of document identified in the first group of documents in element 116 in Fig. 11a. The applicants disagree with the Examiner for the reasons previously given. Element 116 in Fig. 11a is "a preliminary set of potentially matching bills is generated at step 116". (col. 22, l. 8, 9) In contrast, the applicant's invention keeps tracks of documents that have already been identified. Claims 14, 16 – 30, and 32 have been cancelled.

Amended claim 5 reads in part:

"(e) ordering all types of object that are identified in step (d) from the most commonly identified type of object to the least commonly identified type of object; and"

"(f) selecting the retrieved characteristics from step (b) for use in step (c) starting with characteristics for the most commonly identified type of object and progressing to the least commonly identified type of object."

No where does Mennie or any of the other cited prior art order identified documents to determine the order in which future documents are processed to be identified as now clearly claimed in the amended claims. This is done to minimize the amount of time used to identify the types of documents. Claim 13 is believed to be allowable based on its dependency from an allowable amended claim.

The Examiner then cites col. 14, l. 17 – 20 and Fig. 7, element 120 in Sklarew and states that "Sklarew goes on to teach us to that the most frequently identified elements are the first to be compared with the elements to be identified (column 14, lines 17-20, and Fig. 7, element 120)." The Sklarew patent teaches "a unique keyboardless computer system which has the ability to recognize and display Handwritten Symbols and cause the computer to display Font Symbols". At the location in the Sklarew patent cited by the Examiner it teaches: "In this way, the most frequently identified characters will rise to the top of the database and the overall system performance, as measured in time to find a match, will be increased." Since vowels are generally used the most in writing they will rise to the top of the database and will recognized sooner.

The applicant disagrees with the Examiner. A patent for identifying currency bills or documents is entirely different than a patent for recognizing handwriting and converting it into computer text. For the applicant's invention, as now claimed in the amended claims, to be obvious in view of the patent combination cited by the Examiner the need for the novel combination and operation must be at least suggested in the cited prior art or we have hindsight.

The applicant respectfully contends that the invention, as now clearly claimed in the amended claims, is not suggested in any of the cited prior art.

In the key case In re Fine, 837 F.2d 1074, 5 USPQ2d 1596, (Fed. Cir. 1988), the court stated:

> "But whether a particular combination might be 'obvious to try' is not a legitimate test of patentability. Obviousness is tested by 'what the combined teachings of the references would have suggested to those of ordinary skill in the art', but it 'cannot be established by combining the teaching of the prior art to solve the problem of the claimed invention, absent some teaching or suggestion supporting the combination.' Here the prior art contains none. And *teaching of references can be combined only if there is some suggestion or incentive to do so.*' Here the prior art contains none."

> "Instead, the Examiner relies on hind sight in teaching his obviousness rejection. "But, this court has said, to 'imbue one of ordinary skill in the art with the knowledge of the individual, in suite, when no prior art reference or references as of record convey or suggest that knowledge is to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teaching'. It is essential that 'the decision maker forget what he or she has been taught about the claimed invention and casts the mind back to the time the invention was made ... to occupy the mind of one skilled in the art who is presented only with the references, and who is normally guided by the then accepted wisdom in the art."

> "id. One cannot use hindsight reconstruction to pick and choose among isolated disclosures of the prior art to deprecate the claimed invention."

Again in Para-Ordnance Mfg., Inc. v. SGS Importers Int'l, Inc., 37 USPQ2d 1237 (Fed.Cir. 1995) the court stated:

"For a combination of prior art references to render an invention obvious, "there must be some reason, suggestion, or motivation found in the prior art whereby a person of ordinary skill in the field of the invention would make the combination." In re Oetiker, 977 F.2d 1443, 1447,24 USPQ2d 1443, 1446 (Fed. Cir. 1992). That one must point to some reason, suggestion, or motivation to make a combination is not to say that the teaching must be explicit, but in order to render an invention obvious by the combination of prior art references, the record must contain some basis to rebut the presumption of validity. See, e.g., Vandenberg v. Dairy Equip. Co., 740 F.2d 1560, 1568, 224 USPQ 195, 198 (Fed. Cir. 1984). A finding of obviousness on any other basis would constitute hindsight. See Interconnect Planning Corp. v. Feil, 774 F.2d 1132, 1143, 227 USPQ 543, 551 (Fed. Cir. 1985) ("When prior art references require selective combination by the court to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight gleaned from the invention itself.")."
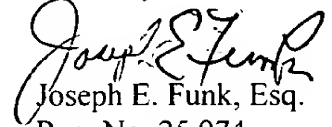
"A simple invention may be patentable, even if the invention comprises the combination of features known in the art, provided the combination itself is not obvious. See In re Sponnoble, 405 F.2d 578, 585, 160 USPQ 237, 243 (CCPA 1969) ("A patentable invention, within the ambit of 35 U.S.C. § 103, may result even if the inventor has, in effect, merely combined features, old in the art, for their known purpose, without producing anything beyond the results inherent in their use.")

Thus, the applicants respectfully believe that the amended claims are allowable.

The Examiner then refers to various claims in paragraphs 16 through 20 of the Office action and cites the Mennie patent. The applicants disagree with the Examiner. All listed claims but claim 13 have been cancelled and claim 13 has been amended, and new claims added. Amended claim 13 and the new claims are believed to be allowable based on their dependency from now allowable amended claims.

- 14 -

In view of the above arguments, cancellation of claims, new claims and the amendments to the remaining claims, this patent application is now believed to be in condition for allowance and passage to issuance is respectfully requested. If there remain any matters that may be resolved by telephone the Examiner is invited and authorized to contact the undersigned attorney via telephone at (603) 432-8788, via fax at (603) 421-2779, or via e-mail at jfunk@tiac.net.

Sincerely,

Joseph E. Funk, Esq.
Reg. No. 25,974
Attorney for Applicant